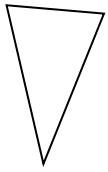
Warm Up 119

1. frustum
2. 
3. 24π
4. $r = 9$ cm

Lesson Practice 119

a. The interior angles of an octagon each measure 135°. If three angles of an octagon met at a vertex, they would have a sum of $3 \times 135° = 405°$, which is greater than 360° and therefore not possible.

b. 300°

c. If four squares met at a vertex, the sum of interior angles of the vertex would be 360°, which would result in a 2-dimensional plane figure that would form a tessellation.

Practice 119

1. The actual answer is $\sin \theta = \frac{1}{\csc \theta}$. She confused $\csc \theta$ with $\sec \theta$.

2. 15 edges

3. tetrahedron

4. A

5. The prism has the same dimensions: 7 units, 3 units, and 5 units. Rotation does not change the size or the shape of a solid, so its dimensions remain unchanged.

6. 162.4

7. 83°

8. Since the convex polygon is about the origin, we can draw lines to each vertex from the origin. The area of the polygon is the sum of the area of each of the triangles, which gives the formula in Lesson 118.

9. 754.9 in^2

10. If the side lengths are multiplied by a, then each term in the summation of the determinant area formula is multiplied by a^2. Hence, the total area is multiplied by a^2.

11. $x = 7.76$

12. The first astronaut is following the line $(x, y, z) = (3, -1, 4) + t(6, 3, 7)$. At $t = 6$, the point on the line is (39, 17, 46). The second astronaut is following the line $(-49, -15, -2) + t(11, 4, 6)$ and at $t = 8$, the point on the line is (39, 17, 46). Since both lines contain this point, this is the point where the two would be at the exact same location.

13. C

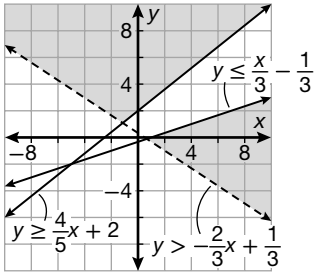
14. 4

15. $x = 4$

16. 4 square units

17. 400 ft^3

18. a point

19. 

20. $10\sqrt{3}$ yd

21. 6.9 in^2

22. $x = 0$

23. westward by 7.4 m

24. always

25. 51.1 in^3

26. inscribed: $r\sqrt{3}$; circumscribed $2r\sqrt{3}$

27. $\frac{\sqrt{5}}{2}$

28. 129

29. icosahedron and dodecahedron

30. $a = 21.93$